

Interface Card Installation Manual

pCOWeb, pCONet & LonWorks Card

Modine Control Systems



WARNING

1. Installing, starting up and servicing heating, ventilation and air conditioning equipment poses significant hazards and requires specialized knowledge of Modine products and training in performing those services. Failure to have any service properly performed by, or making any modification to Modine equipment without the use of, qualified service personnel could result in serious injury to person and property, including death. Therefore, only qualified service personnel should work on any Modine products.
2. Take preventative measures to reduce risk of exposing the card to ESD (Electric Static Discharge) from the operator.
3. Keep components in the original package until installation. If removed from package and not installed, place back inside original package or another antistatic plastic bag.
4. Before installing the interface card, make sure the unit is turned off. Also disconnect any pLAN (J11) and BMS connections as these can carry small levels of power to the unit.
5. Failing to take the preventative measure can result in damages to the interface card.

Interface Card Description

BACnet is a data communications protocol developed by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). BACnet is an ISO global standard and is a national standard in more than 30 countries. BACnet is both an American and European national standard.

Modine Control Systems provides two types of cards that communicate on the BACnet protocol. The pCOWeb (**Figure 1.1**) connects via an Ethernet cable using SNMP and HTTP communication abilities. The pCONet (**Figure 1.2**) card connects via an RS485 connections and only communicates via the BACnet Protocol.

Modine Controls System is also able to communicate with a BMS network via a LonWorks card (**Figure 1.3**). Each LonWorks card has an individual neuron ID that makes it unique and enables differentiation on the LonWorks network.

IMPORTANT

These instructions must also be used in conjunction with the Installation and Service manual originally shipped with the appliance being converted, in addition to any other accompanying component supplier literature.

Figure 1.1 – pCOWeb Interface Card

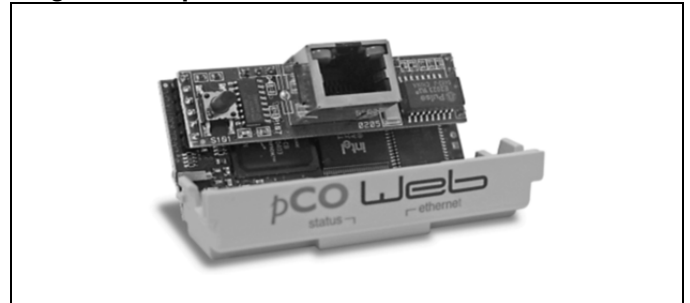


Figure 1.2 – pCONet Interface Card

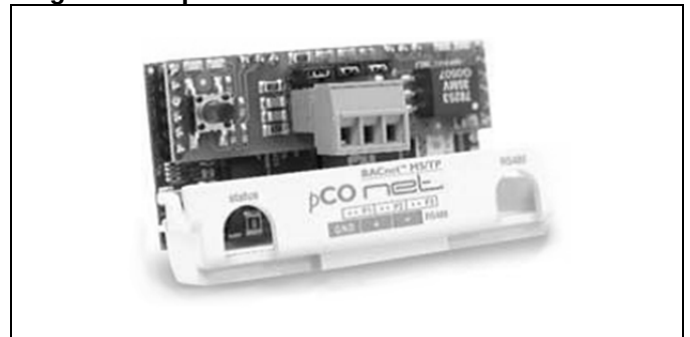
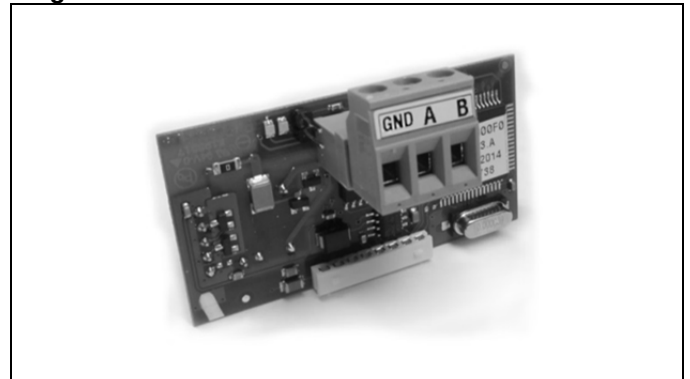


Figure 1.3 – LonWorks Interface Card



INSTALLATION—pCOWeb, pCONet & LonWorks Cards

Interface Card Installation

Warning: Before installing the interface card, make sure the unit is turned off. Also disconnect any pLAN (J11) and BMS connections as these can continue to carry power to the unit.

NOTE: For this installation the Carel pCO controller is being used to demonstrate the installation.

1. Remove the plastic cover that is labeled either serial card or BMS Card. See **Figure 2.1** for location on pCO Controller. **Note:** For LonWorks card, remove center of plastic cover, and reuse as the LonWorks interface cover.
2. With the plastic cover removed, a white eight pin socket (**Figure 2.1**) can be seen on the controller circuit board.
3. For **LonWorks**, remove the 3 pin LON connection on the LonWorks card. (shown installed in **Figure 2.4**)
4. Insert the interface card with the 8 pin plug onto the eight pin socket on the controller; a fair amount of pressure is required for the card to “click” into place.
5. Ensure that the card is firmly secured into the slot, and that the pins are all mated properly. **Note for pCONet:** For the first and last unit of the network, three jumpers must be placed on all six of the resistor pins, these located underneath the RS485 connection, see **Figure 2.2**. Intermediate units do not receive the jumpers.
6. Insert the interface card cover by placing the left hand side in place then press the right hand side in until it “clicks” into place. See **Figure 2.3**
7. For **LonWorks**, replace the 3 pin LON connection on the LonWorks card. See **Figure 2.4**

Figure 2.1—Serial Card Location

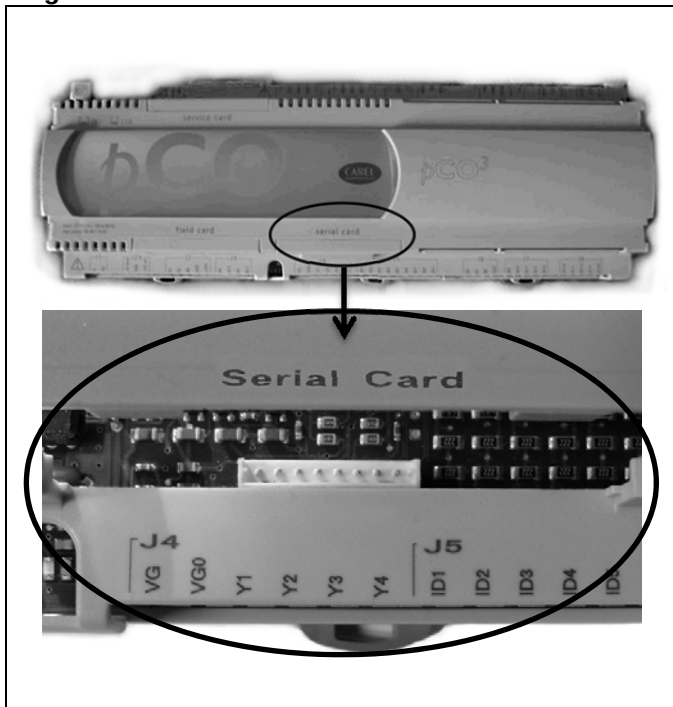


Figure 2.2 – pCONet resistor jumpers

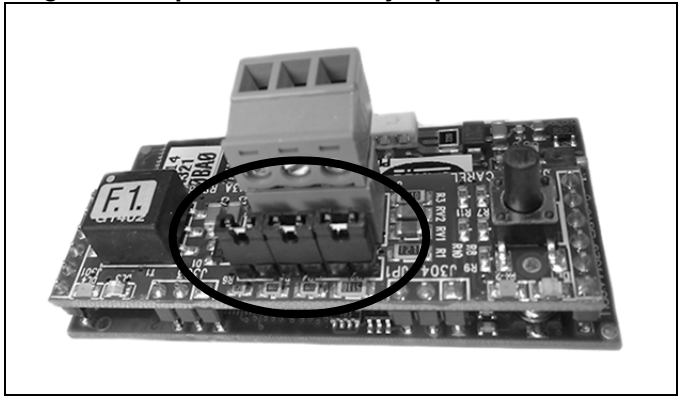


Figure 2.3 – Inserting Cover



Figure 2.4 – LonWorks Card Installed



INSTALLATION—pCOWeb, pCONet & LonWorks Cards

Re-Setting Factory Defaults: pCOWeb and pCONet

1. Restart the software by either turning the unit off then back on, or by holding the reset button for 5-10 seconds after releasing the button the status LED will stop flashing and 15 seconds later the pCONet or pCOWeb will be restarted.
2. After the card has been restarted, press and hold the reset button on the card, located on the front left, shown in **Figure 1.1 & Figure 1.2**. Keep the reset button pressed for at least 20 seconds until the status LED starts to flash red slowly three times. Release the reset button while the red LED is flashing
3. If done correctly the status LED will turn green then quickly flashes red 3 times.
4. Wait one minute for the card to complete its boot phase.
5. The factory recall function will not permanently overwrite previously stored settings, it will only recall them for the duration of the time the card has power to it. If the card loses power it will require resetting again to use the factory settings.

Connecting pCOWeb to a PC

The pCOWeb card connects via Ethernet cable directly from the Ethernet port to any PC. Configure the PC IP address to 172.16.0.2 to communicate with the card. The factory default IP address of the pCOWeb card is 172.16.0.1.

BMS Controller Setup

The BMS setup can be done using the display and keypad located on the controller. The remote display keypad can also be used to setup the BMS.

1. Turn power on after the interface card is installed.
2. To access the BMS settings from the main screen, press  button then using the  or  buttons, scroll through the menu to find the service settings and press the  button. Inside the service settings menu scroll to the BMS Config menu selection and press the  button. **NOTE:** The default password is "1500."
3. Press the  button to select what option you would like to change and use the  or  buttons to change the values of a selection. Move the cursor back to the top to change screens.
4. For each card there is a different process for setup:
 - i. For pCOWeb cards change the "BMS CARD Protocol" to "BACnet IP/Eth."
 - ii. For pCONet cards change the "BMS CARD Protocol" to "BACnet MSTP."
 - iii. For LonWorks cards change the "BMS CARD Protocol" to "Lon". Press the  button to save the selection and the LonWorks BMS selection is complete.
5. For pCOWeb or pCONet, on the next screen the controller will ask if a card has been installed into the controller Select "Yes".
6. Adjust the following settings:

- i. For pCONet, BACnet MSTP setup automatically pulls the information from the pCONet card, confirming the values with the values given by the factory as each card is different. To save changes to the card, go to the BACnet Read/Write screen, select "Write" and update to "Yes."
- ii. For pCOWeb, BACnet IP setup will automatically pull the instance of the pCOWeb card; however the network information needs to be completed in order n to successfully communicate with the network. To save changes to the card if needed, go to the BACnet Read/Write screen, select "Write" and change update to "Yes."

pCONet Setup & Operation

The pCONet cover has two labels for LED's located on the card, one labeled status and the other RS485. The status LED indicates the status of communication with the controller and the status of the pCONet. The RS485 LED indicates the status of communication with the BACnet MS/TP network.

Status LED: During the starting sequence, this LED will remain off for two seconds, and will then flash red-green-red two seconds after starting. Five seconds after restarting it will be a constant green. After 50 seconds normal operation, these are the possible status indicators:

1. Quick green-OFF-green: This indicates proper communication with the controller.
2. Slow red-OFF-red: This indicates that there is no communication with the controller.
3. Green-red-Green: This indicates that the pCONet detects errors or a temporary lack of response from the controller.

RS485 LED: During the starting sequence, this LED will remain off for about 50 seconds then flash green-red-green-red, after this the BACnet will be active. The RS485 will now indicate the quality of the connection with these possible statuses:

1. Green with the occasional red flashes: This indicates communication is ok.
2. Green and Red on together: This indicates that communication has not been established.

INSTALLATION—pCOWeb, pCONet & LonWorks Cards

pCOWeb Setup & Operation

IMPORTANT

Before connecting the pCOWeb to an Ethernet network, it is strongly recommended to contact the network administrator. Incorrect configuration of the pCOWeb may temporarily shut down the entire network.

For the pCOWeb to operate correctly a number of basic parameters need to be set such as the IP address and Netmask. The pCOWeb is supplied with a DHCP function already active. Therefore on a network served by a DHCP, the pCOWeb will automatically acquire the necessary parameters without requiring configuration.

For networks without DHCP, it is recommended to connect the pCOWeb directly to a computer using a cross over Ethernet cable. Then start the board with the “factory bootswitch” parameters by restarting in factory default values see page 2 for instructions.

Setting up PC configuration for pCOWeb

The personal computer must be set to use the following IP address: 172.16.0.2, not the DHCP. The Subnet mask field needs to be set to 255.255.0.0.

1. Go to your PC’s “Control Panel”
2. Open your Network configurations settings
3. Open the local area connection settings
4. Click “Properties”
5. Double click ‘Internet Protocol (TCP/IP)’ in the list.

Note: It is helpful to record all setting changes in order to configure the pCOWeb. When finished, these settings need to be reversed for the PC to communicate with the data network it was previously connected to.

6. Click “Use the following IP-address”
7. Set the Following Parameters

IP address = 172.16.0.2

Subnet Mask = 255.255.0.0

8. Click the OK button to close all the windows and save the settings.

Disabling Proxy settings

If the computer is using a proxy server, this must be disabled before communication with the pCOWeb is possible. If the computer does not use a Proxy server, ignore these steps.

1. Go to your PC’s “Control Panel”
2. Double Click “Internet Options”
3. Click “Connections” from the top row of options
4. Under the Connections Tab Click “LAN Settings...”

Note: It is helpful to record all setting changes in order to configure the pCOWeb. When finished, these settings need to be reversed for the PC to communicate with the data network it was previously connected to.

5. Disable Proxy server
6. Close the windows and save settings using the OK button.

Factory parameters will remain active until the pCOWeb is restarted, when rebooted and the button is not pressed the pCOWeb will return to the “User” configuration.

Table 4.1 – Factory Parameters

Parameter	Value
IP Address	172.16.0.1
Subnet Mask	255.255.0.0
“admin” password	fadmin

The factory values are a part of the “bootswitch parameters” and, unlike the user parameter, cannot be modified. The bootswitch parameters never copy over the user parameters.

Connecting to the pCOWeb via web browser and Cross over cable

After starting the Controller and pCOWeb with the Factory Parameters, make sure that the pCOWeb startup phase is complete. Check that the Status LED is flashing normally. Otherwise, the required web pages will not be sent to the PC.

On the PC, open an Internet browser and in the address field enter the IP address of the pCOWeb card.

172.16.0.1

Then press “Enter” to load the pCOWeb default page.

Establishing a connection between the PC and pCOWeb Via a Network

Before connection to the pCOWeb via a network these following steps must have been previously completed:

1. The pCOWeb must be installed in the controller.
2. The pCOWeb must be connected to an Ethernet network using a standard cable (NOT a crossover cable).
3. The pCOWeb network communication parameters are already correctly configured and the static IP address for the pCOWeb being used must be known.
4. The PC must be already connected and configured to the data network.

If all of these conditions are met, the pCOWeb can be accessed via a network by opening an Internet browser on the PC and typing the IP address of the pCOWeb. **Note:** It is still important that the pCOWeb has completed startup before attempting to connect to it.

INSTALLATION—pCOWeb, pCONet & LonWorks Cards

pCOWeb LED Status

During the starting sequence, on power up, or after restarting, the LED performs the following sequence.

1. Two seconds after starting: quick red-green flash
2. Five seconds after starting: green steady
3. 60 seconds after starting: Board is in operation mode
LED depends on communication status.

The quality of communication with the controller is indicated with the Status LED.

1. Fast green-dark: Communication with controller is OK
2. Slow red-dark: Communication with the controller is not established.
3. Green/red: Temporary errors, lack of a response from controller.

The Ethernet LED flashes to indicate the quality of the connection to the Ethernet network.

1. Green: Communication is ok
2. Flashing green: Exchanging data
3. Red: Communication not established with the other side.

LonWorks Setup & Operation

After the LonWorks card has been installed and connected to the LonWorks network, it needs to send out a "handshake protocol" to be identified on the network. This is done with the service pins. To activate the service pins and send out the "handshake protocol," the two pins must be shorted. This can be done easily with the tip of a screwdriver. The confirmation of a successful "handshake" is indicated by the green service LED.

A red LED light indicates a loss of connection to the controller. If this light is illuminated, check that the BMS Configuration on the controller is set to Lon, See the "BMS Controller Setup" for instructions.

Note: The real connection to the LonWorks network must be performed following the LonWorks instructions and specifications. For further information on installation, cross section and type of cable please refer to LonWorks documentation.

PAGE INTENTIONALLY LEFT BLANK

PAGE INTENTIONALLY LEFT BLANK

Modine Manufacturing Company has a continuous product improvement program, and therefore reserves the right to change design and specifications without notice.



© Modine Manufacturing Company 2015

Modine Manufacturing Company
1500 DeKoven Avenue
Racine, WI 53403
Phone: 1.800.828.4328 (HEAT)
www.modinehvac.com